

STANDARD TEST METHOD 11

FEI CUI (JADEITE JADE) SPECTROSCOPIC EXAMINATION

1.1 SCOPE

This Standard describes the method of using a spectroscope to identify whether the test Fei Cui (Jadeite Jade) is natural or dyed.

1.2 APPLICATION

The spectroscopic examination applies to items made from Fei Cui (Jadeite Jade) as received by the laboratory for testing.

The spectroscopic examination may be used for the identification of Fei Cui (Jadeite Jade) on its authenticity.

1.3 DEFINITIONS

Not Applicable

1.4 APPARATUS

The following apparatus is required:

A diffraction grating spectroscope or a prism spectroscope with an observable range from 400 – 700nm.

1.5 TEST ITEM

The spectroscopic examination is a single unit test for a whole piece of test item in its entirety. Sampling of a number of test items to represent a batch of Fei Cui (Jadeite Jade) products shall not be permitted.

1.6 PROCEDURES

Transmission method:

- 1.The test Fei Cui (Jadeite Jade) shall be cleaned scrupulously with a lint-free cloth.
- 2.The test Fei Cui (Jadeite Jade) shall be fixed in the appropriate position in the spectroscope where light beam shall be allowed to pass through.
- 3.The intensity of the light source shall be adjusted with regard to the transparency and the colour intensity of the test Fei Cui (Jadeite Jade). For a

light-coloured or transparent test Fei Cui (Jadeite Jade), a lower-intensity light shall be used, while for a dark-coloured or translucent test Fei Cui (Jadeite Jade), a higher intensity light shall be used.

- 4.The height of the spectroscope shall be adjusted where it may be necessary to have the test Fei Cui (Jadeite Jade) as close as 1cm or as far as 5cm from the spectroscope.
- 5.For a spectroscope with slit, the slit shall be closed completely at first, then be opened just enough to make the full spectrum visible which in turn eliminate the strong, dust caused horizontal lines.
- 6.The slide tube shall be used to adjust the focus of the spectrum.
- 7.The spectrum of the test Fei Cui (Jadeite Jade) in different positions shall be observed until the maximum absorption is found.

Reflection method:

- 1.The test Fei Cui (Jadeite Jade) shall be cleaned scrupulously with a lint-free cloth.
- 2.The light source shall be shined from an angle so that the light shall be reflected off the surface of the test Fei Cui (Jadeite Jade).
- 3.The position of the spectroscope shall be adjusted so the reflected light can enter the spectroscope.
- 4.For a spectroscope with a slit, the slit shall be closed completely at first, and then opened just enough to make the full spectrum visible which in turn eliminates the strong, dust caused horizontal lines.
- 5.The slide tube shall be used to adjust the focus of the spectrum.
- 6.The spectrum of the test Fei Cui (Jadeite Jade) in different positions shall be observed until the maximum absorption is found.

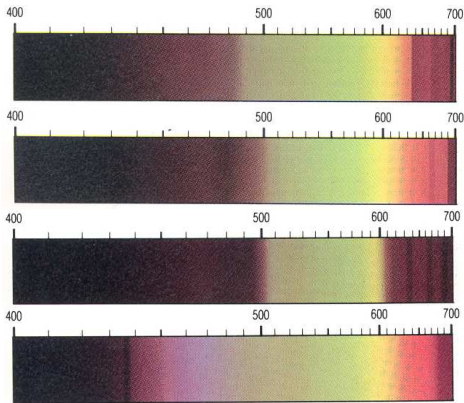
Note:

The quality of the spectrum could be affected by the cut, shape, size, transparency of the test Fei Cui (Jadeite Jade), the light source and any dust or dirt in the slit of the spectroscope.

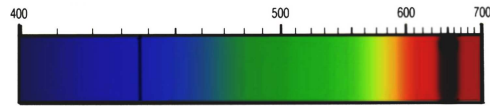
1.7 EXPRESSION OF RESULTS

The following spectra show some examples of the absorption spectrum of Natural Green Fei Cui (Jadeite Jade).

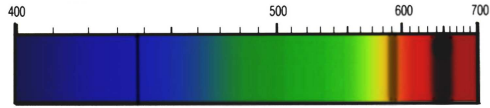
Absorption line(s) is/ are observed at the red spectrum:



The following spectra show examples of the absorption spectrum of dyed Fei Cui (Jadeite Jade):



Green-dyed Fei Cui (Jadeite Jade) spectrum



New resin impregnated & dyed Fei Cui (Jadeite Jade) spectrum

1.8 TEST REPORT

The report shall affirm that the test was carried out in accordance with this Standard. The spectroscopic examination should be reported as far as possible with other Fei Cui (Jadeite Jade) test results such as polariscope examination, shape and cut identification, measurement of dimensions and weight, identification of transparency, determination of specific gravity & refractive index, examination of fluorescence, infrared spectrum examination, magnification examination and Chelsea Colour Filter examination. In general, the test report shall include but not be limited to the following:

- (a) Identification number of the Fei Cui (Jadeite Jade) item.
- (b) Date of test.
- (c) Standard method of spectroscope examination.
- (d) Name of person carrying out the test.
- (e) Name and signature of person responsible for testing.